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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

S-347

ED 072050

Development of USES Aptitude Test Battery

for

Physical Therapist

(medical ser.) 079.378

TM

U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION

ED 072050

Technical Report on Development of USES Aptitude Test Battery

For . . . .

Physical Therapist (medical ser.) 079.378

S-347

(Developed in Cooperation with the
California State Employment Service)

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March 1968

FOREWORD

The United States Employment Service General Aptitude Test Battery (GATB) was first published in 1947. Since that time the GATB has been included in a continuing program of research to validate the tests against success in many different occupations. Because of its extensive research base the GATB has come to be recognized as the best validated multiple aptitude test battery in existence for use in vocational guidance.

The GATB consists of 12 tests which measure 9 aptitudes: General Learning Ability, Verbal Aptitude, Numerical Aptitude, Spatial Aptitude, Form Perception, Clerical Perception, Motor Coordination, Finger Dexterity, and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, with a standard deviation of 20.

Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, in combination, predict job performance. For any given occupation, cutting scores are set only for those aptitudes which contribute to the prediction of performance of the job duties of the experimental sample. It is important to recognize that another job might have the same job title but the job content might not be similar. The GATB norms described in this report are appropriate for use only for jobs with content similar to that shown in the job description included in this report.

Charles E. Odell, Director
U.S. Employment Service

GATB Study Nos. 2684,
2537 and 2559

DEVELOPMENT OF USES APTITUDE TEST BATTERY

for

Physical Therapist (medical ser.) 079.378-034

S-347

This report describes research undertaken for the purpose of developing General Aptitude Test Battery (GATB) norms for the occupation of Physical Therapist (medical ser.) 079.378-034. The following norms were established:

GATB Aptitudes	Minimum Acceptable GATB Scores
G - General Learning Ability	105
V - Verbal Aptitude	105
S - Spatial Aptitude	90

RESEARCH SUMMARY

Sample: 122 (64 male, 58 female) Physical Therapy students from three Southern California Universities. All students served five affiliations of four weeks each in the Physical Therapy Departments of various hospitals and clinics located throughout the United States.

Criterion: Final Grade Point Averages for Physical Therapy course of study.

Design: Longitudinal (sample was tested during beginning of junior and senior years of college; criterion data were collected upon completion of senior year).

Minimum aptitude requirements were determined on the basis of a course and job analysis and statistical analyses of aptitude mean scores, standard deviations, aptitude-criterion correlations and selective efficiencies.

Predictive Validity: Phi Coefficient = .33 ($P/2 < .0005$)

Effectiveness of Norms: Only 64% of the non-test-selected students used for this study were good students; if the students had been test-selected with the S-347 norms, 75% would have been good students. 36% of the non-test-selected students used for this study were poor students; if the students had been test-selected with the S-347 norms, only 25% would have been poor students. The effectiveness of the norms is shown graphically in Table 1.

TABLE 1

Effectiveness of Norms

	Without Tests	With Tests
Good Students	64%	75%
Poor Students	36%	25%

SAMPLE DESCRIPTION

Size: N = 122

Occupational Status: Students

Work Setting: Students were enrolled at the following Universities:

1. University of Southern California, Los Angeles, California
2. University of California, Los Angeles, Children's Hospital, Los Angeles, California
3. Loma Linda University, Loma Linda, California

Students served affiliations at the following hospitals or clinics:

1. Brentwood V.A. Hospital, West Los Angeles, California
2. Casa Colina Rehabilitation Center, Pomona, California

3. Glendale Sanitarium and Hospital, Glendale, California
4. Kaiser Foundation Hospital, Fontana, California
5. Kaiser Rehabilitation Center, Vallejo, California
6. Loma Linda Sanitarium and Hospital, Loma Linda, California
7. Long Beach General Hospital, Long Beach, California
8. Long Beach V.A. Hospital, Long Beach, California
9. Los Angeles County General Hospital, Los Angeles, California
10. Olive View Hospital, Olive View, California
11. Orthopedic Hospital, Los Angeles, California
12. Patton State Hospital, Patton, California
13. Rancho Los Amigos Hospital, Downey, California
14. Sepulveda V.A. Hospital, Sepulveda, California
15. Riverside Community Hospital, Riverside, California
16. Santa Fe Hospital, Los Angeles, California
17. Sunshine School, Arlington, California
18. Victorville Physical Therapy Center, Victorville, California
19. Wadsworth V.A. Hospital, West Los Angeles, California
20. Westminister Physical Therapy, Westminister, California
21. Kennedy Child Care Center, Santa Monica, California
22. San Diego Children's Hospital, San Diego, California
23. Tichenor Clinic, Long Beach, California
24. Southern California Permanente, Los Angeles, California
25. Harbor General Hospital, Torrance, California
26. Cypress Avenue School, Ontario, California
27. Woodcrest School, Fullerton, California
28. Letterman General Hospital, San Francisco, California

29. Metropolitan State Hospital, Norwalk, California

30. Carl Harvey School, Santa Ana, California

31. Hospital of the Good Samaritan, Los Angeles, California

32. Los Angeles County Physically Handicapped Children's Program, Los Angeles, California

33. May T. Morrison Center For Rehabilitation, San Francisco California

34. Long Beach Memorial Hospital, Long Beach, California

35. St. Mary's Hospital, Long Beach, California

36. St. Vincent's Hospital, Los Angeles, California

37. Woodruff Gables Hospital, Bellflower, California

38. Pomona Valley Community Hospital, Pomona, California

39. California Lutheran Hospital, Los Angeles, California

40. White Memorial Hospital, Los Angeles, California

41. Hinsdale Sanitarium & Hospital, Hinsdale, Illinois

42. Kettering Memorial Hospital, Kettering, Ohio

43. Portland Sanitarium & Hospital, Portland, Oregon

44. Reading Institute of Rehabilitation, Reading, Pennsylvania

45. Washington Sanitarium & Hospital, Takoma Park, Maryland

46. Institute of Physical Medicine and Rehabilitation, New York City, New York

47. Shriner's Children's Hospital, St. Louis, Missouri

48. Jefferson Barracks V.A. Hospital, St. Louis, Missouri

49. Porter Sanitarium and Hospital, Denver, Colorado

50. New York Rehabilitation Hospital, West Haverstraw, New York

California College Selection Requirements:

Education: Minimum of sixty-two semester units of college work in an accredited Liberal Arts College, including six semester units in American Institutions and California Government; ten semester units in Biological Science, four semester units in Chemistry, six semester units in English, two semester units in Physical Education, six semester units in Psychology, two semester units in Speech, and electives.

Principal Activities: The job duties for each student while in internship are comparable to those shown in the job description in the Appendix. A condensation of these duties appears in the Fact Sheet. A course description for the two-year Physical Therapy program is also shown in the Appendix.

Minimum Experience: None

TABLE 2

Means (M), Standard Deviations (SD), Ranges, and Pearson Production-Moment Correlations with the Criterion (r) for Age and Education at Time of Testing

	Mean	SD	Range	r
Age (years)	23.7	3.9	19-38	-.032
Education (years)	15.0	0.8	14-17	.183*

*Significant at the .05 level

EXPERIMENTAL TEST BATTERY

All 12 tests of the GATB, B-1002B, were administered in 1963 during either the junior or senior year of college.

CRITERION

The criterion data consisted of final grade point averages (GPA) attained for all of the physical theraphy courses. The grades were obtained upon completion of the senior year. (The grade point average for each student was multiplied by 10 for ease of statistical computation.)

Descriptive Rating Scale (DRS) scores were obtained for each individual in the sample at the end of each affiliation during internship. (Standard SP-21 rating forms were used.) All ratings for each individual in the sample were averaged together for a mean score. The correlation between grade point averages and average scores of descriptive rating scales was .448.

Various attempts to use a multiple hurdle criterion consisting of grade point averages and Descriptive Rating Scale scores or ratings alone were not successful. Therefore, grade point averages were selected as the final criterion.

Criterion Score Distribution:	Grade Point Averages	Ratings
Possible Range	10-40	9-45
Actual Range	19-40	20-41
Mean	29.8	31.7
Standard Deviation	5.1	3.8

Criterion Dichotomy: The criterion distribution was dichotomized into low and high groups by placing 36 percent of the sample in the low group to correspond with the percentage of students considered unsatisfactory or marginal. Students in the high criterion group were designated as "good students: and those in the low group as "poor students." The criterion critical score is 28.

APTITUDES CONSIDERED FOR INCLUSION IN THE NORMS

Aptitudes were selected for tryout in the norms on the basis of qualitative analysis of job duties involved and course descriptions, and a statistical analysis of test and criterion data. Aptitude K is included since the sample had a relatively high mean and a relatively low standard deviation on this aptitude. Aptitude M was included because the sample had a relatively high mean on this aptitude and job analysts noted it as important for the job duties.

TABLE 3

Qualitative Analysis
(Based on the course and job analysis, the aptitudes indicated appear to be important to the work performed)

Aptitude	Rationale
G - General Learning Ability	Necessary to determine, plan, execute and evaluate patient's physical condition and type of treatment required.
V - Verbal Aptitude	Necessary to communicate with physicians and patients both verbally and in written reports.
M - Manual Dexterity	Necessary to manuever, manipulate and position patient for necessary treatment.

TABLE 4

Means (M), Standard Deviations (SD), Ranges and Pearson Product-Moment Correlations with Criteria r_{GPA} and r_{DRS} for the Aptitudes of the GATB

Aptitudes	Mean	SD	Range	r_{GPA}	r_{DRS}
G - Gen. Learning Ability	118.5	12.2	89-151	.366**	.209*
V - Verbal Aptitude	115.7	12.6	88-145	.426**	.167
N - Numerical Aptitude	112.9	13.4	80-157	.122	.195**
S - Spatial Aptitude	117.6	15.9	74-153	.275**	.110
P - Form Perception	120.4	15.0	91-160	.099	.151
Q - Clerical Perception	122.3	14.3	86-161	.185*	.120
K - Motor Coordination	120.8	13.5	87-153	.043	.116
F - Finger Dexterity	107.3	17.1	65-137	-.025	.036
M - Manual Dexterity	123.0	18.6	72-172	-.002	.098

*Significant at the .05 level
**Significant at the .01 level

TABLE 5

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important	X	X							X
Irrelevant									
Relatively High Mean					X	X	X		X
Relatively Low Standard Deviation	X	X	X				X		
Significant Correlation with GPA Criterion	X	X		X		X			
Significant Correlation with DRS Criterion	X		X						
Aptitudes to be Considered for Trial Norms	G	V	N	S		Q	K		M

DERIVATION AND VALIDITY OF NORMS

Final norms were derived on the basis of a comparison of the degree to which trial norms consisting of various combinations of aptitudes G, V, N, S, Q, K, and M at trial cutting scores were able to differentiate between the 64% of the sample considered good students and the 36% of the sample considered poor students. Trial cutting scores at five point intervals approximately one standard deviation below the mean are tried because this will eliminate about one-third of the sample with three-aptitude norms. For two-aptitude trial norms, minimum cutting scores of slightly more than one standard deviation below the mean will eliminate about one-third of the sample; for four-aptitude trial norms, cutting scores of slightly less than one standard deviation below the mean will eliminate about one-third of the sample. The

Phi Coefficient was used as a basis for comparing trial norms. Norms of G-105, V-105 and S-90 provided optimum differentiation for the occupation of Physical Therapist (medical ser.) 079.378. The validity of these norms is shown in Table 6 and is indicated by a Phi Coefficient of .33 (statistically significant at the .0005 level).

TABLE 6

Predictive Validity of Test Norms, G-105, V-105, S-90

	Nonqualifying Test Scores	Qualifying Test Scores	Total
Good Students	13	65	78
Poor Students	22	22	44
Total	35	87	122

Phi Coefficient (ϕ) = .33 Chi Square (X^2_ϕ) = 13.7
Significance Level = P/2 $<$ .0005

DETERMINATION OF OCCUPATIONAL APTITUDE PATTERN

The data for this study met the requirements for incorporating the occupation studied into OAP-8 which is shown in Section II of the Manual for the General Aptitude Test Battery. The OAP-8 norms of G-100, V-100, S-90 yield a Phi Coefficient of .23 which is statistically significant at the .01 level.

CHECK STUDY RESEARCH SUMMARY SHEET FOR S-347

S-347 GATB Study 2559

Physical Therapist (medical ser.) 079.378-034

Check Study #1 Research Summary

Sample

88 (23 male and 65 female) Physical Therapist employed at ten hospitals in the Los Angeles, California area.

TABLE 7

Means (M), Standard Deviations (SD), Ranges and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, Experience and the Aptitudes of the GATB; N = 88

Aptitudes	Mean	SD	Range	r
G - General Learning Ability	114.4	13.6	78-153	.198
V - Verbal Aptitude	119.0	14.3	86-160	.167
N - Numerical Aptitude	108.0	15.4	71-143	.203
S - Spatial Aptitude	108.0	14.7	71-137	.013
P - Form Perception	113.3	18.6	65-149	.182
Q - Clerical Perception	121.3	15.3	88-157	.019
K - Motor Coordination	117.8	16.1	86-155	-.106
F - Finger Dexterity	97.9	20.7	50-146	.133
M - Manual Dexterity	106.3	17.3	63-152	.253*
Age	33.3	9.6	21 - 65	-.111
Education	16.7	1.0	16 - 20	-.121
Experience	73.5	70.2	6 - 357	-.013

*Significant at the .05 level

Criterion

Supervisory ratings of job proficiency (SP-21) made in 1963 and 1964 at approximately the same time as the tests were administered.

Design

Concurrent (test and criterion data were collected at approximately the same time).

Principle Activities

The job duties of this sample are comparable to those shown in the Appendix for the validation sample.

Concurrent Validity

Phi Coefficient (ϕ) = .24 (P/2 $<$.025)

Effectiveness of Norms

Only 68% of the nontest-selected workers used for this study were good workers; if the workers had been test-selected with the S-347 norms, 77% would have been good workers. 32% of the nontest-selected workers used for this study were poor workers; if the workers had been test-selected with the S-347 norms, only 23% would have been poor workers. The effectiveness of the norms is shown in Table 8.

TABLE 8
Effectiveness of S-347 Norms on Check Study Sample #1

	Without Tests	With Tests
Good workers	68%	77%
Poor workers	32%	23%

TABLE 9
Concurrent Validity of S-347 Norms for Check Study Sample #1

	Nonqualifying Test Scores	Qualifying Test Scores	Total
Good workers	14	46	60
Poor workers	14	14	28
Total	28	60	88

Phi Coefficient (ϕ) = .24 Chi Square (X^2) = 5.1

Significance Level = P/2 $<$.025

CHECK STUDY RESEARCH SUMMARY SHEET FOR S-347

S-347 GATB Study 2537

Physical Therapist (medical ser.) 079.378-034

Check Study #2 Research Summary

Sample

102 (11 male, 91 female) Physical Therapist students at the universities of Michigan (15), Pennsylvania (5), Wisconsin (25); Ohio State University (39), and Marquette University (18) tested in 1964. (Only students included in this final sample were those who received BS degree, completed their clinical experience and received their certificate in Physical Therapy.)

TABLE 10

Means, Standard Deviations (SD), Ranges and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; Age and Education, N = 102

Aptitudes	Mean	SD	Range	r
G - General Learning Ability	126.3	11.7	93 - 156	.260**
V - Verbal Aptitude	126.0	11.8	98 - 156	.324**
N - Numerical Aptitude	122.3	13.0	83 - 149	.184
S - Spatial Aptitude	117.3	14.0	81 - 150	.087
P - Form Perception	123.5	15.4	88 - 173	-.072
Q - Clerical Perception	130.5	14.3	94 - 164	.100
K - Motor Coordination	122.4	14.9	89 - 173	.068
F - Finger Dexterity	115.2	18.1	72 - 158	.150
M - Manual Dexterity	113.0	20.2	58 - 176	-.062
Age	22.2	1.0	21 - 28	-.214*
Education	16.0	0	---	---

**Significant at the .01 level
*Significant at the .05 level

Criterion

Total gradepoint averages collected in 1964 after concept of BS degree.

Design

Concurrent (criterion data were collected at approximately the same time as test data).

Principle Activities

The duties of the job the students were preparing for are comparable to those shown in the Appendix for the validation sample.

Concurrent Validity

Phi Coefficient (ϕ) = .19 ($P/2 < .05$)

Effectiveness of Norms:

Only 68% of the nontest-selected students used for this study were good students; if the students had been test-selected with the S-347 norms, 71% would have been good students. 32% of the nontest-selected students used for this study were poor students; if the students had been test-selected with the S-347 norms, only 29% would have been poor students. (Because of the relatively high aptitude level of the sample, less than 10% fail the norms and therefore the percentage increase shown is slight. However, 2/3 of the students failing the norms were considered poor students.) The effectiveness of the norms is shown graphically in Table 11.

TABLE 11
Effectiveness of S-347 Norms on Check Study Sample #2

	Without Tests	With Tests
Good workers	68%	71%
Poor workers	32%	29%

TABLE 12
Concurrent Validity of S-347 Norms for Check Study Sample #2

	Nonqualifying Test Scores	Qualifying Test Scores	Total
Good students	3	66	69
Poor students	6	27	33
Total	9	93	102

Phi Coefficient (ϕ) = .19

Chi Square (χ^2_{xy}) = 3.7

Significance Level = $P/2 < .05$

A-P-P-E-N-D-I-X A

PHYSICAL THERAPIST - Job Description for Validation Sample

SUMMARY: Plans, executes, evaluates, and modifies rehabilitative treatment program of hydrotherapy, electrotherapy, special exercises, and functional activities, according to medical prescription, to aid in the physical restoration of disabled patients.

WORK PERFORMED: Plans patient's initial treatment program: Receives medical prescription from patient's attending physician and records such pertinent information onto patient's physical therapy record card as aim of treatment, diagnosis, medications being given, and precautions to be taken. Reads patient's medical chart carefully to thoroughly understand such primary factors as site, extent and onset of disability, and diagnosis. Obtains such additional information about patient from members of rehabilitation team as his prognosis, socio-economic background, living situation, self-perception, and vocation to increase understanding of his problems, personality, outlook, and experience; and to determine relationship of physical therapy to patient's total treatment. Administers such clinical tests to patient as muscle tests, muscle response tests, nerve tests, functional tests, and range of motion tests, using such devices and equipment as goniometers and electro-muscle stimulators, to ascertain extent of his physical loss. Observes and interviews patient to evaluate such psychological factors as his cooperativeness, ability to comprehend and follow instruction, attention span, retentiveness, depression, anxiety, and reaction to his illness and determines effect, if any, on physical therapy program. Interprets aim of treatment, results of clinical tests, psychological factors, information received from all sources, and specific recommendations from attending physician to determine most effective, realistic and diversified treatment program to meet immediate and long-range needs of patient. Selects appropriate manual, mechanical, and psychological methods, procedures, and techniques to gain prescribed results, according to patient's diagnostic condition, emotional response, age, personality, and psychological aspects related to his specific disease or injury. Determines patient's immediate or future need for such orthopedic appliances as slings, braces, wheelchairs, and walkers; and upon approval of attending physician, prepares written order according to department procedure. Plans appropriate modification of treatment to meet needs of patient confined to bed in such devices as body traction or body casts. Determines appropriate personal approach to patient, according to his age, mental comprehension, and personality to prepare him psychologically for treatment and motivate him to participate, at maximum endurance, in group

treatment sessions or on individual treatment basis in order to improve his condition. Coordinates physical therapy with other treatments patient may require and cooperates with members of rehabilitation team to work out total treatment based on patient's needs and endurance.

Chats with patient momentarily, in warm, friendly manner, to put him at ease and establish rapport. Prepares patient psychologically for treatment by explaining purpose of rehabilitation program, nature of treatment, and painful reactions or unusual sensations, if expected, adapting conversation to his mental comprehension and empathic understanding of his feelings, reaction, and tolerance. Gathers and positions necessary equipment and supplies for use in treatment. Removes splints, braces, or other devices from patient, assists him onto treatment table, and removes necessary articles of clothing. Positions patient properly for maximum relaxation and comfort, and ease of application, and drapes him with sheet and towels to prepare him for treatment. Directs therapeutic electric rays on affected part of patient's body, using such equipment as infra-red and ultra-violet lamps to produce such results as reducing or limiting joint and muscle pain, arresting infective processes, and healing wounds. Applies therapeutic electrical currents to affected part of patient's body, using such equipment as short-wave diathermy machines and other low voltage generators to stimulate, relax, exercise or restore weak or paralyzed muscles, relieve pain, or stimulate nervous system. Varies exposure time and adjusts dosage of rays and current, according to patient's medical condition, skin reaction, and tolerance; and sets automatic timer for desired duration of treatment. Massages such affected areas of patient's body as his neck, back, arms, and fingers, using ultra-sound, or appropriate rubbing, kneading or stroking techniques, according to his medical condition and pain tolerance, to provide such results as sedation, nerve stimulation, softening of skin and underlying tissue, or circulation stimulation. Turns valves and knobs and sets hand gauges to start and regulate water flow, agitation, pressure, and temperature of such therapeutic baths as Hubbard tanks and whirlpools, and adds cleansing formula, when indicated, to provide such results to patient as restoration of articular and muscular function, and cleansing contaminated wounds, burns, and skin lesions. Assists or lifts patient into bath or immerses affected body part of patient into agitating water, sets automatic timer for prescribed duration of treatment, and exercises immersed body part using appropriate active and passive movements. Gives patient individualized and personalized treatment while immersed in water and observes him closely for adverse reactions; takes temperature, pulse and blood pressure readings before, during, and after treatment, if indicated, and applies sterile wraps and sterile bandages to all contaminated and open lesions following treatment. Maintains asepsis to avoid contamination and spread of infection. Uses extreme care when transferring patient to and from baths to avoid injury. Administers, instructs, and assists patient with such rehabilitative exercises as progressive resistance exercises, mat exercises, transfer activities,

ambulation, and gait training, using such equipment and techniques as barbells, wall pulleys, shoulder wheels, parallel bars, crutches, and weights to increase range of motion, maintain or improve strength, power and coordination, and increase endurance; determines rest period during treatment session. Instructs and assists upper and lower extremity amputee patients with such pre-prosthetic and post-prosthetic training as proper bed positioning for good body alignment; exercising stump to maintain strength and range of motion; sit-ups for general body conditioning; stump tapping to desensitize stump; stump shrinkage with ace bandages; crutch balancing and walking without prosthesis; functional activities using wheelchair, crutches, and prosthesis; gait training with prosthesis; and such difficult daily skills as walking up and down stairs, curbs and ramps with crutches and prosthesis. Applies intermittent and continuous traction to patients, using automatic traction machine or manual techniques, to provide such results as relieving muscle spasms, promoting better circulation in tissues, and alleviating pain. Sets automatic controls on traction machine or applies adequate weights on manual device to accomplish prescribed results; readjusts traction for proper pull and patient's maximum comfort, and sets automatic timer for prescribed duration of treatment. Evaluates treatment program constantly, and re-tests patient with clinical tests to determine whether his condition is improving, regressing, or static; changes or modifies techniques accordingly, and repeatedly, to find methods that will provide maximum results to patient. Adheres to planned schedule or selects most important aspects of patient's treatment when treatment time is temporarily curtailed. Instructs patient in home treatment program according to his mental comprehension and living situation.

Records results of patient's initial tests, aim of treatment, planned treatment program, changes in treatment program, type and date of each treatment, and progress notes on all patient records and charts according to department policy, to communicate evidence of facts and events to attending physician and other health related services, provide administrative control, and comply with law. Attends ward rounds, staff meetings, rehabilitation clinics, planning conferences, case presentations, and related interdepartmental meetings to report specific treatment methods and patient progress, reappraise therapeutic objectives, exchange information, and clarify planning for overall treatment programs.

Schedules patient load, according to amount of individual preparation necessary by therapist, available space to work in, number of hours per day during which patients may be treated, accessibility of both patients and personnel, and number of patients who may be treated in groups, or separately on the ward to allow for effective treatment of every patient. Maintains general order in treatment area, changes linen on treatment beds after treatment, and assumes responsibility for supplies and equipment used by patient. Assumes

responsibility for patient's safety and comfort, and determines need for such safety practices as placing restraints on patients left alone on treatment tables or using waist straps for transferring and balancing patient, to avoid accidents. Requisitions additional supplies and equipment, and reports equipment repair needs according to department procedure. Assists with student training program; and instructs, supervises and evaluates physical therapy attendants. Interprets and demonstrates activities of daily living accomplishments of patient, to other medical personnel working with him, and details such needs as positioning, splinting, and special equipment to be worn, for proper follow-through of patient care. Considers patient's economic situation when scheduling him to return for treatment on out-patient basis, and reports changes in his economic needs and situation according to department policy. Discusses home care of patient with his relatives and instructs them in such methods and procedures as special exercises, use of slings and braces, stump wrapping, and transfer activities; encourages them to discuss problems and ask for suggestions; reinstructs them or uses written instructions, if necessary. Orients medical staff and other departments in principles, purposes, standards, and value of physical therapy through lectures and demonstrations. Complies with hospital, departmental, and safety regulations.

A-P-P-E-N-D-I-X B

PHYSICAL THERAPIST - Course Description for Validation Sample

PROGRAM OF INSTRUCTION

SCHOOL OF PHYSICAL THERAPY

The program of instruction in physical therapy is organized in this School for the junior and senior years, admission being contingent upon completion of the freshman and sophomore years at a liberal arts college. In addition there are four to six weeks of clinical affiliation following the senior year.

Emphasis in the junior year is on basic knowledge of the functions and processes of the human body and of the pathology of diseases and injuries in which physical therapy can be helpful. During the senior year, classroom instruction is integrated with instruction in applied physical therapy by means of demonstration, discussion, and supervised practice.

The period of internship is devoted to clinical experience under the supervision of registered physical therapists. The student is assigned to a full work-week schedule in affiliated hospitals.

DISTRIBUTION OF INSTRUCTION

JUNIOR YEAR:

First Semester

HISTOLOGY
A basic study of the microscopic structure of cells and the fundamental tissues is made. The subject matter complements the information presented in anatomy, physiology, pathology, and neuroanatomy so that the student may have a better understanding of the relationship between structure and function in health and disease.

PHYSICS
This course in general physics provides a background for the study of physical therapy.

PHYSIOLOGY
This course is designed to give familiarity with the physiology of the body processes. Lectures and laboratory work consider circulation, respiration, and nerve-muscle physiology in relation to activity.

HISTORY AND TRENDS IN PHYSICAL THERAPY
The historical background, present practices, and trends of the physical therapy profession are discussed. The student is familiarized with professional organizations, periodicals, and the role of the physical therapist as a member of the medical team.

PHYSICAL THERAPY A
Preclinical study of the principles of physical therapy is made, with special emphasis on hydrotherapy. By means of lecture, demonstration, and laboratory practice these principles are presented and the skills and techniques of hydrotherapeutic procedures are acquired. The basic concepts of massage are also presented.

Second Semester

ANATOMY AND KINESIOLOGY
The study of the gross anatomy of the human body by means of lecture, laboratory dissection, demonstration, and slides places emphasis on those features related to functional activity. The study of kinesiology is correlated with anatomy to give a composite concept relating structure and function.

NEUROANATOMY
By means of lecture and laboratory, a basic study is made of the structure and function of the nervous system.

PERSONAL AND COMMUNITY HEALTH
Concepts of disease prevention are studied in terms of maintaining the positive health of the individual and in terms of various applications in the community. The major health problems considered include prevention of infectious diseases, health problems of the aging, and promotion of mental health.

INTRODUCTION TO THERAPEUTIC EXERCISE
Lectures are given in history, terminology, and general posture correction. The student participates in form-giving exercises. Instruction includes direction of classes for all age groups, construction of exercise tables, and teaching of elementary school students.

PHYSICAL THERAPY B
This course is a continuation of Physical Therapy A, with special emphasis on electro-therapy. The principles and physiologic effects of electrical currents are studied as they relate to therapeutic value in the treatment of disease. The technique of application of the various methods of applying this form of energy is taught by demonstration and practice.

THERAPEUTIC MASSAGE
The theory and technique of massage are studied with particular reference to clinical application.

CLINICAL OBSERVATION
Opportunity is provided for early introduction of the student to observation in a patient-centered atmosphere.

SENIOR YEAR

First Semester

PATHOLOGY
Lectures and laboratory summarize the basic pathologic processes, with emphasis on the alterations which occur in body tissues in relation to diseases, injuries, and deformities and on resulting alteration of function.

CLINICAL MEDICINE A
This course is designed to impart to the student, through lecture and conference, a background knowledge of common diseases in which physical therapy is an adjunct to recovery. Included for study are the fields of internal medicine, orthopedics, neurology, surgery, psychiatry, and nutrition.

THERAPEUTIC EXERCISE A
This course consists of a study of the principles of therapeutic exercise in relation to specific medical, surgical, neurologic, and orthopedic conditions. Normal and abnormal body mechanics, muscle re-education, diagnostic tests and measurements, underwater exercise in the therapeutic pool, activities of daily living, and progressive exercise programs leading to restoration of function and/or self-care are considered in lecture and laboratory.

PSYCHOLOGY OF THE PHYSICALLY DISABLED
Psychological reactions to organic illness and methods of dealing with these reactions are considered with reference to the clinical situation.

CLINICAL PRACTICE A
Provision is made for the student to practice in a situation where theoretical knowledge may be put into clinical use under direction.

APPLIED PHYSICAL THERAPY A
This course emphasizes total patient management, including the evaluation and planning of effective treatment programs in physical therapy. Patients are used as subject matter in a clinical setting.

Second Semester

APPLIED PHYSIOLOGY
This course deals with the physiologic responses of the human body to the various physical agents such as heat, cold, massage, and exercise. A study is made of the respiratory muscle function and lung ventilation as it applies to various diseases commonly met.

CLINICAL MEDICINE B
A continuation of Clinical Medicine A.

THERAPEUTIC EXERCISE B
A continuation of Therapeutic Exercise A.

CLINICAL PRACTICE B
A continuation of Clinical Practice A.

APPLIED PHYSICAL THERAPY B
A continuation of Applied Physical Therapy A.

ETHICS AND ADMINISTRATION OF PHYSICAL THERAPY
Included for consideration are such subjects as physical plant and equipment; program organization; function, preparation, and use of records and reports; ethical conduct in relationships with patients and with lay and professional co-workers; the institutions and agencies participating in patient care.

PHYSICAL THERAPY SEMINAR
Key conditions are presented for discussion as they relate to all aspects of a total patient program.

PHYSICAL THERAPY INTERNSHIP
The student is required to serve an internship period of five months in a real life situation where a wide variety of experience may be gained. The place of internship is determined in consultation with the Educational Director.

FACT SHEET

Job Title: Physical Therapist (med. ser.) 079.378-034

Job Summary: Plans, executes, evaluates, and modifies rehabilitative treatment program of Hydrotherapy, Electrotherapy, Special Exercises, and Functional Activities, according to Medical Prescription, to aid in the Physical Restoration of disabled patients.

Work Performed: Plans patient's initial treatment program: Records such pertinent information onto patient's physical therapy record card as aim of treatment, diagnosis, medications being given, and precautions to be taken. Reads patient's medical chart to understand such primary factors as site, extent and onset of disability, and diagnosis. Obtains such additional information about patient from members of Rehabilitation Team as his prognosis, socio-economic background, living situation, self-perception, and vocation to increase understanding of his problems, personality, outlook, and experience. Administers such clinical tests as muscle tests, nerve tests, functional tests, and range of motion tests, using such devices and equipment as Goniometers and Electro-Muscle Stimulators, to ascertain extent of physical loss. Observes and interviews patient to evaluate such psychological factors as his cooperativeness, ability to comprehend and follow instruction, attention span, retentiveness, depression, anxiety, and reaction to his illness and determines effect on physical therapy program. Interprets aim of treatment, results of clinical tests, psychological factors, information received from all sources, and specific recommendations from attending physician to determine most effective treatment program. Selects appropriate manual, mechanical, and psychological methods, procedures, and techniques to gain prescribed results, according to patient's diagnostic condition, emotional response, age, personality, and psychological aspects related to his specific disease or injury. Determines patient's need for such orthopedic appliances as slings, wheelchairs, and walkers. Determines appropriate personal approach to patient, according to his age, mental comprehension, and personality to prepare him psychologically for treatment and motivate him to participate, at maximum endurance, in group treatment sessions or on individual treatment basis in order to improve his condition.

Treats patient: Prepares patient psychologically for treatment by explaining purpose of rehabilitation program, nature of treatment, and painful reactions or unusual sensations. Gathers and positions necessary equipment and supplies for use in treatment. Removes splints, braces, or other devices from patient, assists him onto treatment table, and removes necessary articles of clothing. Positions patient for treatment. Directs therapeutic electric rays on affected part of patient's body, using such equipment as Infra-Red and Ultra-Violet Lamps to produce such results as reducing or limiting joint and muscle pain, arresting infective part of patient's body, using such equipment as Short-Wave Diathermy Machines and other low voltage generators to stimulate, relax, exercise or restore weak or paralyzed muscles, relieve pain, or stimulate nervous system. Varies exposure time and adjusts dosage of rays and current, according to patient's medical condition, skin reaction, and tolerance; and sets automatic timer for desired duration of treatment.

Massages such affected areas of patient's body as his neck, back, arms, and fingers, using Ultra-Sound, or appropriate rubbing, kneading or stroking techniques, according to his medical condition and pain tolerance. Turns valves and knobs and sets hand gauges to start and regulate water flow, agitation, pressure, and temperature of such therapeutic baths as Hubbard Tanks and Whirlpools, and adds cleansing formula, when indicated, to provide such results to patient as restoration of articular and muscular function, and cleansing contaminated wounds, burns, and skin lesions. Assists or lifts patient into bath or immerse affected body part of patient into agitating water, sets automatic timer for prescribed duration of treatment, and exercises immersed body part using appropriate active and passive movements. Takes temperature, pulse and blood pressure readings before, during, and after treatment, and applies sterile wraps and sterile bandages to contaminated and open lesions following treatment. Maintains asepsis to avoid contamination and spread of infection. Administers, instructs, and assists patient with such rehabilitative exercises as progressive resistance exercises, mat exercises, transfer activities, ambulation, and gait training, using such equipment and techniques as barbells, wall pulleys, shoulder wheels, parallel bars, crutches, and weights. Applies intermittent and continuous traction to patients, using automatic traction machine or manual techniques, to provide such results as relieving muscle spasms, promoting better circulation in tissues, and alleviating pain. Sets automatic controls on traction machine or applies adequate weights on manual device to accomplish prescribed results; readjusts traction for proper pull and patient's maximum comfort, and sets automatic timer for prescribed duration of treatment. Evaluates treatment program constantly, and re-tests patient with clinical tests to determine whether his condition is improving, regressing, or static; changes or modifies techniques accordingly, and repeatedly, to find methods that will provide maximum results to patient.

Maintains appropriate clinical records, and reports related information: Records results of patient's initial tests, aim of treatment, planned treatment program, changes in treatment program, type and date of each treatment, and progress notes on all patient records and charts according to department policy.

Performs miscellaneous related duties: Schedules patient load. Determines need for such safety practices as placing restraints on patients or using Waist Straps for transferring and balancing patient. Requisitions additional supplies and equipment, and reports equipment repair needs according to department procedure. Assists with student training program; and instructs, supervises and evaluates physical therapy attendants. Discusses home care of patient with his relatives and instructs them in such methods and procedures as special exercises, use of slings and braces, stump wrapping, and transfer activities. Orients medical staff and other departments in principles, purposes, standards, and value of physical therapy through lectures and demonstrations.

Effectiveness of Norms: Validation sample: Only 64% of the nontest-selected students used for this study were good students; if the students had been test-selected with the S-347 norms, 75% would have been good students. 36% of the nontest-selected students used for this study were poor students; if the students had been test-selected with the S-347 norms, only 25% would have been poor students.

Applicability of S-347 Norms: The aptitude test battery is applicable to jobs which include a majority of duties described above.

GPO 865-555

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